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MCGRATH, GEISSLER, OLDS & RICHARDSON, PLLC
P.O. BOX 1364
FAIRFAX, VA 22038-1364

EXAMINER	
AGHDAM, FRESHTEH N	
ART UNIT	**PAPER NUMBER**
2611	

MAIL DATE	DELIVERY MODE
09/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/929,703	FRIEDRICH, ULRICH	
	Examiner	Art Unit	
	Freshteh N. Aghdam	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7,10,13,14 and 16-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7,10,13,14 and 16-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 7/2/2007 have been fully considered but they are not persuasive.

Applicant's Arguments: Regarding claims 1-3, 5, 16-19, 21, 22, 24, 25, 27-30, and 32, page 4, the applicant argues "First, Applicants respectfully note that the Examiner has not cited any support for the assertion that it would have been obvious "to modulate different symbols conveying information as taught by Dent in order to take advantage of their robustness to noise." (emphasis added). Applicants respectfully submit that this conclusory statement made by the Examiner is not a proper basis to substantiate an obviousness rejection."

And also, the applicant argues "Second, the Examiner asserted that Nikula is not "explicit about the modulation technique ... ." Applicants respectfully disagree, and submit that Nikula clearly teaches methods and systems which use phase modulation. For example, Nikula teaches that the modulation step is accompanied with a phase rotation which may [sic] an inherent consequence of the applied modulation algorithm or which may be introduced deliberately as an addition to the actual modulation," (see col. 5, lines 39-43; emphasis added). "

Examiner's Response: First of all the examiner would like to thank the applicant for pointing out the typographical error made in the previous office action (Pg. 4 of remarks) it was meant to be. However, the examiner believes that the applicant

recognizes that it was in fact meant to be written as "based on the amplitude of the phase modulation index."

The examiner would like to explain the logic behind the grounds of rejection made in the previous office action more clearly. Nikula discloses the assigning lower modulation levels with lower modulation depths/ indices (e.g. GMSK modulation scheme or BPSK modulation scheme) to signaling symbol(s) than the user/ data symbol(s) (e.g. 8-PSK modulation scheme) in order to transmit signaling information with a higher transmission power than the corresponding user symbol(s) (Col. 3, lines 13-20) and as the result when the transmission power increases the detection of the signaling information improves. However, Nikula is silent about the modulation technique employed is an amplitude modulation technique. The examiner strongly believes that **one of ordinary skill in the art** would recognize that instead of differing phase modulation levels (e.g. BPSK for the signaling information and 8-PSK for the data portion) differing amplitude modulation levels could be utilized (amplitude modulation techniques are known in the art) to be assigned to signaling information (for example 4-QAM) and data/user information (for example 8-QAM or 64-QAM) since as Dent discloses employing the amplitude modulation techniques such as QAM to modulate the signaling information and the data/user information is known in the art (Col. 10, lines 20-24 and 43-55) and it is beneficial because employing amplitude modulation techniques has the advantage of robustness to noise because QAM modulation scheme is in fact the addition of amplitude modulation to multi-level PSK modulation scheme, wherein the signaling information and data/user information are encoded into variations of

amplitude. Therefore, the examiner disagrees with the applicant that the combination of Nikula and Dent does teach the claimed limitation(s).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 16-19, 21-22, 24-25, 27-30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al (US 7,031,334), and further in view of Dent (US 5,377,183).

As to claims 1-2, 16-17, 24-25, 28, and 32 Nikula teaches a method for transmitting signals comprising assigning different modulation indices to different information blocks conveying data (Col. 2, Lines 32-47; Col. 3, lines 13-20); modulating a signal using phase modulation (Col. 5, Lines 33-36); the modulation indices identifying a type of the conveyed data based on an amplitude of the phase modulation index, wherein at least one characteristic physical variable of the carrier signal is modulated in accordance with the different modulation indices assigned respectively to the information blocks that are modulated onto the carrier signal to produce a modulated signal (Col. 8, Lines 27-45); the modulated signal is transmitted from the first transceiver to the second transceiver, and the second transceiver evaluates the modulated signal to obtain the conveyed data (Col. 7, Lines 52-63; Col. 8, Lines 27-45);

and transmitting the modulated signal from the transmitting device to a receiving device, wherein the receiving device evaluates the modulated signal to obtain the conveyed data (Col. 7, Lines 45-63; Col. 8, Lines 27-45). Nikula is silent about the modulation technique employed is an amplitude modulation technique. One of ordinary skill in the art would recognize that instead of differing phase modulation levels (e.g. BPSK for the signaling information and 8-PSK for the data portion) differing amplitude modulation levels could be utilized to be assigned to signaling information (for example 4-QAM) and data/user information (for example 8-QAM or 64-QAM) since as Dent discloses employing the amplitude modulation techniques such as QAM to modulate the signaling information and the data/user information is known in the art (Col. 10, lines 20-24 and 43-55) and it is beneficial because employing amplitude modulation techniques has the advantage of robustness to noise because QAM modulation scheme is in fact the addition of amplitude modulation to multi-level PSK modulation scheme, wherein the signaling information and data/user information are encoded into variations of amplitude. Therefore, it would have been obvious to one of ordinary skill in the art to utilize a type of amplitude modulation technique such as QAM or QPSK to modulate different symbols conveying information as taught by Dent in order to take advantage of their robustness to noise.

As to claims 3, 5, 27, and 29, Nikula further teaches transmitting successive blocks (Col. 2, Lines 32-47; Abstract).

As to claims 18-19, Nikula teaches assigning different modulation indices to different information symbols and as the result identifying the type of information symbol

whether it is a data or a control signal in the receiving device (Col. 3, Lines 13-20; Col. 7, Lines 44-51). Nikula is not explicit about the third and fourth modulation indices being assigned to the third and fourth information symbols. However, one of ordinary skill in the art would realize to assign third and fourth modulation indices to third and fourth information symbols in order to distinguish the type of information signal that is received in the receiving device and recovering the transmitted signal accordingly. Therefore, it would have been obvious to one of ordinary skill in the art to assign third and fourth modulation indices to third and fourth information symbols for the reason stated above.

As to claim 21, Nikula teaches transmitting information symbols utilizing different modulation schemes and modulation depths (i.e. indices; Col. 3, Lines 13-20; Col. 7, Lines 44-51).

As to claim 22, Nikula teaches that the different modulation indices respectively have predefined modulation index values that differ from one another by predefined differences that can be detected and differentiated by the receiving device (Col. 7, Lines 45-67; Col. 8, Lines 27-45).

As to claim 30, Nikula teaches that at least one of said information symbols represents a control signal (i.e. signaling information) and further comprising receiving the control signal in the modulated information signal in the receiving device and controlling the receiving device responsively to the control signal (Col. 1, Lines 16-25; Col. 2, Lines 25-47).

Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al and Dent, further in view of J.P. Fonseka (IEEE ELECTRONICS LETTERS 2nd September 1999 Vol. 35 No.18).

As to claims 7 and 20, Nikula teaches transmitting information symbols utilizing different modulation schemes and modulation depths (i.e. indices; Col. 3, Lines 13-20; Col. 7, Lines 44-51). Nikula and Dent are not explicit about transmitting information symbols by varying the period lengths of modulation periods differ from one another to define additional information symbols. Fonseka teaches varying both the modulation index and the symbol duration simultaneously (Pg. 1517, Col. 2; Pg. 1518, Col. 1; Table 1 and 2). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Fonseka with Nikula and Dent in order to improve signal recovery by varying both modulation index and the symbol duration simultaneously (Pg. 1518, Col. 2).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al, and Dent, further in view of Fujiwara (US 4,794,649).

As to claim 10, Nikula teaches transmitting signaling information along with the data information to a receiving device (Fig. 1-2). Nikula and Dent are not explicit about the signaling information being a clock signal. Fujiwara teaches in order to establish synchronization, a signaling information (i.e. clock signal) is transmitted from the transmitting device to the receiving device (Col. 6, Lines 13-15). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Fujiwara

with Nikula and Dent in order to control the receiver both in time and carrier frequency with the stream of synchronization symbols to increase accuracy of the communication system (Col. 1, Lines 65-67).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al and Dent, further in view of Kim et al (US 6,493,333).

As to claim 13, Nikula teaches a method for transmitting signals comprising assigning different modulation indices to different information blocks conveying data (Col. 2, Lines 32-47); modulating a signal using phase modulation (Col. 5, Lines 33-36); the modulation indices identifying a type of the conveyed data based on an amplitude of the phase modulation index, wherein at least one characteristic physical variable of the carrier signal is modulated in accordance with the different modulation indices assigned respectively to the information blocks that are modulated onto the carrier signal to produce a modulated signal, wherein at least one of the information blocks includes data for a control signal (i.e. signaling information) and the modulation index of the control signal is smaller than the modulation index of a data signal formed by others of the information blocks (Col. 8, Lines 27-45); the modulated signal is transmitted from the first transceiver to the second transceiver, and the second transceiver evaluates the modulated signal to obtain the conveyed data (Col. 7, Lines 52-63; Col. 8, Lines 27-45); and transmitting the modulated signal from the transmitting device to a receiving device, wherein the receiving device evaluates the modulated signal to obtain the conveyed data (Col. 7, Lines 45-63; Col. 8, Lines 27-45). Nikula is silent about the modulation

technique employed is an amplitude modulation technique. One of ordinary skill in the art would recognize that instead of differing phase modulation levels (e.g. BPSK for the signaling information and 8-PSK for the data portion) differing amplitude modulation levels could be utilized to be assigned to signaling information (for example 4-QAM) and data/user information (for example 8-QAM or 64-QAM) since as Dent discloses employing the amplitude modulation techniques such as QAM to modulate the signaling information and the data/user information is known in the art (Col. 10, lines 20-24 and 43-55) and it is beneficial because employing amplitude modulation techniques has the advantage of robustness to noise because QAM modulation scheme is in fact the addition of amplitude modulation to multi-level PSK modulation scheme, wherein the signaling information and data/user information are encoded into variations of amplitude. Therefore, it would have been obvious to one of ordinary skill in the art to utilize a type of amplitude modulation technique such as QAM or QPSK to modulate different symbols conveying information as taught by Dent in order to take advantage of their robustness to noise. Nikula and Dent are not explicit about the signaling information data is used for setting a data rate. Kim discloses that the signaling information includes data rate information (Col. 2, Lines 5-10). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Kim with Nikula and Dent in order to control data transmission and improving the communication system performance by employing the signaling information (Col. 1, Lines 66-67).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al, Dent, and Fujiwara, further in view of Ricci et al (US 6,463,039).

As to claims 14, Nikula, Dent, and Fujiwara teach all the subject matter claimed in claim 10, except for the second transceiver has no electronic circuit for clock generation and is a passive transponder that uses the clock signal for local clocking. Ricci teaches providing clock signal and power to the passive transponder (Col. 9, Lines 66 and 67; Col. 10, Lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Rucci with Nikula, Dent, and Fujiwara in order to provide clock signal to the passive transponder for synchronization purposes and enhance system performance accordingly.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al and Dent, and further in view of Ricci et al.

As to claims 31, Nikula and Dent teach all the subject matter claimed in claim 30, except for the second transceiver has no electronic circuit for clock generation and is a passive transponder that uses the clock signal for local clocking. Ricci teaches providing clock signal and power to the passive transponder (Col. 9, Lines 66 and 67; Col. 10, Lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Ricci with Nikula and Dent in order to provide clock signal to the passive transponder for synchronization purposes and enhance system performance accordingly.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikula et al and Dent, further in view of Landolsi (US 6,570,842).

As to claim 26, Nikula and Dent teach all the subject matter claimed in claim 16, except for the modulation index being defined as the ratio of the maximum amplitude and a consistent amplitude modulation swing of the respective information signal. Landolsi defines the amplitude modulation index as the ratio of the maximum amplitude and a consistent amplitude modulation swing of the information signal (Col. 7, Lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Landolsi with Nikula and Dent in order to compute the modulation indices.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is 571-272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Freshteh Agham
Examiner
Art Unit 2611

August 23, 2007

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER